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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/763,354 | 01/23/2004 | Randy Hoffman | 200311820-1 | 7100 |
| 22879 | 7590 | 12/20/2004 | EXAMINER | |
| HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400 | | | FLYNN, NATHAN J | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2826 | |

DATE MAILED: 12/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/763,354

Applicant(s)

HOFFMAN, RANDY

Examiner

Fazli Erdem

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 and 34-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 34-38 is/are allowed.
- 6) ☒ Claim(s) 1-3, 23-25, 29 and 39 is/are rejected.
- 7) ☒ Claim(s) 4-22, 26, 27, 28 and 41-46 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/23 and 7/14/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Allowable Subject Matter

1. Claims 34-38 allowed.
2. The following is a statement of reasons for the indication of allowable subject matter:
Prior art failed to establish thin film channel with doped and undoped portions to aid in the manipulation of the fixed electrical charge.
3. Claims 4-22, 26, 27, 28 and 41-46 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
4. The following is a statement of reasons for the indication of allowable subject matter:
Prior art failed to establish zinc oxide thin film channel region with doped portion to aid in the manipulation of the fixed electrical charge.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
6. Claims 1-3, 23-25, 29 and 39 rejected under 35 U.S.C. 103(a) as being unpatentable over Chiang et al. (4,598,305) in view of Makita et al. (5,936,291)

Regarding Claims 1-3, 23-25, 29 and 39, Chiang et al. disclose a depletion mode thin film semiconductor photodetectors where in Figs. 1 and 7, it is disclosed a depletion mode thin film transistor 10 with source electrode 30, drain electrode 32, gate

electrode 22, two layers of channel region 16 and 14 that have n doped upper layer and p doped lower layer and gate oxide dielectric layer that separates gate electrode 22 from the channel regions 16 and 14. Chiang et al. fail to disclose the required fixed electrical charge density manipulation. However, Makita et al. disclose a thin film transistor and method for fabricating the same where in Figs. 1 and 2 the required fixed charge manipulation is disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required fixed charge manipulation in fixed electrical charge in Chiang et al. as taught by Makita et al. in order to have a thin film semiconductor device with increased functionality.

7. Claim 40 rejected under 35 U.S.C. 103(a) as being unpatentable over Chiang et al. (4,598,305) in view of Makita et al. (5,936,291)

Regarding Claims 40, Chiang et al. disclose a depletion mode thin film semiconductor photodetectors where in Figs. 1 and 7, it is disclosed a depletion mode thin film transistor 10 with source electrode 30, drain electrode 32, gate electrode 22, two layers of channel region 16 and 14 that have n doped upper layer and p doped lower layer and gate oxide dielectric layer that separates gate electrode 22 from the channel regions 16 and 14. Chiang et al. fail to disclose the required fixed electrical charge manipulation and the required display elements. However, Makita et al. disclose a thin film transistor and method for fabricating the same where in Figs. 1 and 2 the required fixed charge manipulation is disclosed. Furthermore, Yamazaki et al. disclose a semiconductor device

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having a gate oxide film where in Figs 8F and 9, the required display elements are disclosed.

It would have been obvious to one of having ordinary skill in the art at the time the invention was made to include the required fixed charge manipulation in fixed electrical charge and the required display elements in Chiang et al. as taught by Makita et al. and Yamazaki et al. respectively, in order to have a thin film semiconductor device with increased functionality.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fazli Erdem whose telephone number is (571) 272-1914. The examiner can normally be reached on M - F 8:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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NATHAN J. FLYNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800